

Steven J. Davis

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CURRENT POSITION(S)

2024 - present *Professor, Earth System Science*
Stanford University – Palo Alto, CA

2023 - present *Chair, Science Advisory Board*
[Watershed](#) – San Francisco, CA

RESEARCH INTERESTS

Coupled human and natural systems and sustainable systems analysis, including especially: energy technology and policy; pollution and resources embodied in international trade; “lock-in” of environmental problems; assessments of impacts and vulnerabilities; and the complex interactions of energy systems, agriculture, climate change, and global ecology

EDUCATION

2008 *PhD, Geological and Environmental Sciences*
Stanford University – Stanford, CA
Advisor: C. Page Chamberlain

2001 *JD, Virginia School of Law*
University of Virginia – Charlottesville, VA

1998 *BA, Political Science / Philosophy*
University of Florida – Gainesville, FL
Double major with honors, Phi Beta Kappa

COMMUNITY SERVICE AND OUTREACH

- Journal Referee: *Nature, Science, Science Advances, Nature Climate Change, Nature Energy, Nature Geoscience, Nature Sustainability, Nature Food, Nature Communications, PNAS, PNAS Nexus, Joule, Energy & Environmental Science, Geophysical Research Letters, ES&T, Energy Policy, Ecological Economics, Environmental Research Letters, Water Resources Research*
- Member, Technical Council, [Science Based Targets Initiative](#) (2023-present)
- Member, Board of Directors, [Aspen Global Change Institute](#) (2022-present)
- Member, Scientific Steering Committee, [Global Carbon Project](#) (2020-present)
- Co-Founder and Co-Lead, [Carbon Monitor](#) (2020-present)
- Chapter Lead (Ch. 32, Mitigation), [Fifth National Climate Assessment](#) (NCA5; 2021-2024)
- Mentor, [AGU Mentoring Network](#) (2019-2022)
- Contributing Author, [IPCC 6th Assessment Report](#) (AR6; 2020-2022)

RECENT AND UPCOMING TALKS AND MEETINGS

- UC Davis, Energy Graduate Research Group, November 2024
- INFORMS Annual Meeting, October 2024
- UC Santa Barbara, Bren School, March 2024
- AGU Fall Meeting, December 2023
- MIT Climate Tech Conference, October 2023
- University of Utah, Wilkes Center for Climate Science & Policy, May 2023

STUDENT AND POSTDOCTORAL ADVISEES

Jing Cheng, Postdoctoral Scholar
Jacqueline Dowling, Postdoctoral Scholar (co-mentored with Ken Caldeira)
Shi Chen, Postdoctoral Scholar (co-mentored with Ken Caldeira)
Candelaria Bergero, Doctoral Student
Julianne DeAngelo, Doctoral Student (now at [Watershed](#))
Can Cui, Visiting Doctoral Student (now a postdoc at [ETH Zurich](#))
Robert A. Fofrich Navarro, Doctoral Student (now a postdoc at [UCLA](#))
Dawn Woodard, Doctoral Student (now a staff research scientist at [NRDC](#))
Chaopeng Hong, Postdoctoral Scholar (now an Assistant Professor at [Tsinghua University](#))
Dan Tong, Postdoctoral Scholar (now an Assistant Professor at [Tsinghua University](#))
Yue Qin, Former Postdoctoral Scholar (now an Assistant Professor at [Peking University](#))
Anna LoPresti, Masters Student (Graduated)
Christine Shearer, Postdoctoral Scholar (now at [Global Energy Monitor](#))


PAST ACADEMIC APPOINTMENTS

2020 - 2024	<i>Professor, Earth System Science</i>
2016 - 2020	<i>Associate Professor, Earth System Science</i>
2012 - 2016	<i>Assistant Professor, Earth System Science</i>
2017 - 2024	<i>Affiliated Professor, Civil & Environmental Engineering</i> University of California, Irvine – Irvine, CA
2008 - 2012	<i>Postdoctoral Scholar, Department of Global Ecology</i> Carnegie Institution of Washington - Stanford, CA Supervisor: Ken Caldeira
2004 - 2008	<i>Research Assistant, Stable Isotope Biogeochemistry Laboratory</i> Stanford University – Stanford, CA


PROFESSIONAL EXPERIENCE

2022 - 2023	<i>Head of Climate Science</i> Watershed – San Francisco, CA
2009 - 2017	<i>Co-Founder and Chief Scientist</i> Near Zero – Seattle, WA
2006 - 2010	<i>Co-Founder and Executive Director</i> The Climate Conservancy – Stanford, CA
2002 - 2004	<i>Associate Attorney, Corporate & Securities Group</i> Gray, Cary, Ware & Freidenrich, LLP – Palo Alto, CA

JOURNAL PUBLICATIONS (* indicates student or postdoc author)

 Google Scholar (h-index: [77](#))

 ORCID [0000-0002-9338-0844](#)

 ResearcherID: [F-9968-2010](#)

154 publications, mean impact factor: **19.3**

in review

Kinnebrew, E, LL Sloat, Y Qin*, **SJ Davis**, JT Abatzoglou, S Siebert, and ND Mueller. Historical trends in snowmelt for irrigation.

Wang, L, Y Liu, L Zhao, X Lu, L Huang, Y Jin, SJ Davis, A Aghakouchak, X Huang, T Zhu, and Y Qin*. Unraveling climate change-induced compound low-solar-low-wind extremes in China.

Jackson, RB, M Saunois, A Martinez³, JG Canadell, X Yu, M Li, B Poulter, PA Raymond, P Regnier, P Ciais, **SJ Davis**, and PK Patra. Human activities now fuel two-thirds of global methane emissions.

Yao, L, H Jiang, J Qin, Y Bai, M Brandt, L Xu, **SJ Davis**, N Lu, W Zhao, T Liu, and C Zhou. Towards a sustainable globally interconnected solar-wind-storage power system.

Cheng, J*, ML Goulden, J Randerson, S Coffield, AP Williams, Q Zhang, and **SJ Davis**. Prioritizing wildfire fuel management in California.

Ouyang, Z, RB Jackson, M Saunois, JG Canadell, Y Zhao, C Morfopoulos, PB Krummel, PK Patra, GP Peters, F Dennison, AT Archibald, V Arora, P Ciais, **SJ Davis**, S Feron, D Hauglustaine, CD Jones, MW Jones, E Kato, D Kennedy, J Knauer, S Lienert, D Lombardozzi, JR Melton, JEMS Nabel, M O'Sullivan, G Pétron, B Poulter, J Rogelj, DS Calle, P Smith, P Suntharalingam, H Tian, C Wang, and A Wiltshire. The global hydrogen budget.

Chen, S*, X Lu, J Hao, E Virgüez, K Caldeira, and **SJ Davis**. High land costs favor fixed-tilt solar power.

Zhang, Q, Y Wang, Q Xiao, G Geng, **SJ Davis**, J Liu, W Huang, RV Martin, M Bruaer, JT Randerson, and Kebin He. Global PM_{2.5} exposure and health impacts from 2023 Canadian wildfires.

Guo, Y, L Yan, D Tong*, X Qin, Q Wu, **SJ Davis**, X Yan, D Zheng, R Xu, F Liu, G Ji, G Geng, K He, and Q Zhang. Unit-level drivers and opportunities for reducing mercury emissions in the global coal power fleet.

Navarro, RAF*, L Sloat, NS Diffenbaugh, F Moore, ND Mueller, and **SJ Davis**. Crop migration in response to future climate change.

Li, S, Y Gao, J Zhang, C Hong*, S Zhang, D Chen, O Wild, Z Feng, Y Xu, X Guo, W Kou, F Yan, M Ma, X Yao, H Gao, and **SJ Davis**. Co-benefits of climate mitigation for food security in China.

Freese, LM, E Virgüez, **SJ Davis**, and K Caldeira. Country-to-country imposition of climate damage.

Bistline, J, M Browning, J DeAngelo*, D Huppmann, R Jones, J McFarland, A Molar-Cruz, S Rose, **SJ Davis**. Uses and limits of national decarbonization scenarios to inform net-zero transitions.

Navarro, RAF*, L Liebermann*, FC Moore, and **SJ Davis**. Company-specific transition risks in the global power sector.

Cheng, J*, D Tong*, H Zhao, R Xu, Y Qin, Q Zhang, K Caldeira, and **SJ Davis**. Energy security in net-zero emissions energy scenarios.

Ruggles, T, E Virgüez, N Reich, J Dowling, H Bloomfield, E Antonini; **SJ Davis**, NS Lewis, and K Caldeira. The impact of the length of weather records for resource adequacy planning in solar- and wind-based electricity systems.

Wang, S, J Wang, C Fang, X Chen, J Liang, Y Liu, S Gao, K Hubacek, X Liu, C Zhou, Y Shan, K Feng, Z Liu, C Hong, **SJ Davis**. Decoupling consumption-based CO₂ emissions from economic growth.

Ciais, P, **SJ Davis**, S Saatchi, Z Deng, B Poulter, F Chevallier, G Grassi, Z Liu, RL Thompson, GA McKinley, N Gruber, JP Wigneron, P Gentine, A d'Aspremont, T Lauvaux, C Albergel and D Crisp. Towards near-real-time estimates of greenhouse gas budgets.

in press

154. Dowling, JA*, TH Ruggles, ND Reich, EA Virguez, ZP Ifkovits, **SJ Davis**, AX Li, KM Kennedy, KZ Rinaldi, L Duan, K Caldeira, and NS Lewis. Technological opportunities and constraints of power-to-hydrogen-to-power systems for grid-scale energy storage. [Environmental Research: Energy](#).

153. Zheng, D, D Tong*, **SJ Davis**, Y Qin*, Y Liu, R Xu, J Yang, X Yan, Q Zhang. Climate change impacts on the power shortage events of wind-solar supply systems worldwide during 1980–2022. [Nature Communications](#).

2024

152. Liu, Z, Z Deng, **SJ Davis**, and P Ciais. Monitoring global carbon emissions in 2023. [Nature Reviews Earth & Environment](#).

151. Sanders, BF, D Brady, J Schubert, E-M H Martin, **SJ Davis**, and KJ Mach. Quantifying social inequalities in flood risk. [ASCE OPEN: Multidisciplinary Journal of Civil Engineering](#).

150. Mittakola, RT, P Ciais, JE Schubert, D Makowski, C Zhou, H Bazzi, T Sun, Z Liu, and **SJ Davis**. Drivers of natural gas use in US buildings. [Science Advances](#). V. 10, n. 14. doi: 10.1126/sciadv.adh5543

2023

149. Zhao, W, B Zhu, **SJ Davis**, P Ciais, C Hong*, Z Liu, and P Gentine. Increased reliance on fossil energy during extreme events. [Communications Earth & Environment](#). v. 4, p. 473. doi: 10.1038/s43247-023-01147-z

148. **Davis, SJ**, K Alexander, C Hong*, Juan Moreno-Cruz, M Shaner, K Caldeira, and I McKay. Food without agriculture. [Nature Sustainability](#). doi: 10.1038/s41893-023-01241-2

147. Yang, P, Z Mi, Y-M Wei, SV Hanssen, L-C Liu, D Coffman, X Sun, H Liao, Y-F Yao, J-N Kang, P-T Wang, and **SJ Davis**. The global mismatch between equitable carbon dioxide removal liability and capacity. National Science Review.
146. Tong, D*, R Xu , **SJ Davis**, X Qin*, J Cheng*, Q Shi , Y Liu, C Chen , L Yan , X Yan , H Wang , K He , and Q Zhang. Plant-by-plant decarbonization strategies for global steel industry. Nature Climate Change. doi: 10.1038/s41558-023-01808-z
145. Brown, PT, H Hanley, A Mahesh, C Reed, SJ Strenfel, **SJ Davis**, AK Kochanski, and CC Clements. Climate-driven risk of extreme wildfire in California. Nature. doi: 10.1038/s41586-023-06444-3
144. Cheng, J*, D Tong*, Y Liu, G Geng, **SJ Davis**, K He, and Q Zhang. A synergistic approach to air pollution control and carbon neutrality in China can avoid millions of premature deaths annually by 2060. One Earth. v. 6, n. 8, p. 978-989, doi: 10.1016/j.oneear.2023.07.007
143. AghaKouchak, A, L Huning, M Sadegh, Y Qin, Y Markonis, F Vahedifard, A Mishra, A Mehran, R Obringer, A Hjelmst, S Pallickara, S Jiwa, M Hanel, Y Zhao, A Pendergrass, M Arabi, **SJ Davis**, P Ward, M Svoboda, R Pulwarty, and H Kreibich. Toward impact-based monitoring of drought and its cascading hazards. Nature Reviews Earth & Environment. doi: 10.1038/s43017-023-00457-2
142. Hegwood, M, MG Burgess, EM Costigliolo*, P Smith, B Bajželj, H Saunders, and **SJ Davis**. Rebound effects could offset more than half of avoided food waste. Nature Food. V. 4, p. 585-595, doi: 10.1038/s43016-023-00792-z
141. Arzeno-Soletero, IB, C Frieder, BT Saenz, MC Long, J DeAngelo*, **SJ Davis**, and KA Davis. Biophysical potential and uncertainties of global seaweed farming. Communications Earth & Environment. v. 4, p. 185, doi: 10.1038/s43247-023-00833-2
140. Ke, P, Z Deng, B Zhu, B Zheng, Y Wang, O Boucher, S Arous, C Zhou, R Andrew, X Dou, T Sun, X Song, Z Li, F Yan, D Cui, Y Hu, D Huo, J Pierre, R Engelen, **SJ Davis**, P Ciais, and Z Liu. Carbon Monitor Europe, near-real-time daily CO₂ emissions for 27 EU countries and the United Kingdom. Scientific Data. v. 10, p. 374, doi: 10.1038/s41597-023-02284-y
139. Wang, J*, N Ulibarri, TA Scott, and **SJ Davis**. Environmental justice, infrastructure provisioning, and environmental impact assessment: evidence from the California Environmental Quality Act. Environmental Science and Policy. v. 146, p. 66-75, doi: 10.1016/j.envsci.2023.05.003
138. Chen, X, L Chen, W Xie, N Mueller, and **SJ Davis**. Flight delays due to air pollution in China. Journal of Environmental Economics and Management. v.119, p. 102810, doi: 10.1016/j.jeem.2023.102810

137. Zhu, B, Z Deng, X Song, W Zhao, D Huo, T Sun, P Ke, D Cui, C Lu, H Zhong, C Hong, J Qiu, **SJ Davis**, P Gentine, P Ciais, and Z Liu. Carbon Monitor-Power near-real-time monitoring of global power generation on hourly to daily scales. Scientific Data. v. 10, p. 217, doi: 10.1038/s41597-023-02094-2
136. Liu, Z, Z Deng, **SJ Davis**, and P Ciais. Monitoring global carbon emissions in 2022. Nature Reviews Earth & Environment. v. 4, p. 205-206, doi: 10.1038/s43017-023-00406-z
135. Zheng, B, P Ciais, F Chevallier, H Yang, JG Canadell, Y Chen, E Chuvieco, M Deeter, C Hong, Y Kong, H Li, X Lin, **SJ Davis**, Q Zhang, and K He. Record high CO₂ emissions from boreal fires in 2021. Science. doi: 10.1126/science.ade0805
134. Zhou, C, B Zhu, **SJ Davis**, Z Liu, A Halff, S Ben Arous, H de Almeida Rodrigues, and P Ciais. Can the EU replace Russian gas? Earth System Science Data. v. 15, p. 949-961, doi: 10.5194/essd-15-949-2023
133. Huang, X, J Liu, K Ding, Z Wang, R Tang, L Xue, H Wang, Q Zhang, **SJ Davis**, MO Andreae, and A Ding. Smoke-weather interaction feeds extreme wildfires in coastal regions of different climate regimes. Science. v. 379, n. 6631, p. 457-461, doi: 10.1126/science.add9843
132. Dou, X, J Hong, P Ciais, F Chevallier, F Yan, Y Yu, Y Hu, D Huo, Y Wang, **SJ Davis**, M Crippa, G Janssens-Maenhout, D Guizzardi, E Solazzo, X Lin, X Song, B Zhu, D Cui, P Ke, H Wang, W Zhou, X Huang, Z Deng, and Z Liu. Near-real-time global gridded daily CO₂ emissions 2021. Scientific Data. v. 10, p. 69, doi: 10.1038/s41597-023-01963-0
131. Bergero, C*, G Gosnell, D Gielen, S Kang, M Bazilian, and **SJ Davis**. Pathways to net-zero emissions from aviation. Nature Sustainability. doi: 10.1038/s41893-022-01046-9
130. Wang, S, Z Hausfather, **SJ Davis**, J Lloyd, EB Olson, L Liebermann*, and J McBride. Materials demand for electricity in climate mitigation scenarios. Joule. doi: 10.1016/j.joule.2023.01.001
- 2022
129. DeAngelo, J*, BT Saenz, IB Arzeno-Soletero, C Frieder, MC Long, J Hamman, KA Davis, and **SJ Davis**. Economic and biophysical limits to seaweed-based climate solutions. Nature Plants. V. 9, p. 45-57. doi: 10.1038/s41477-022-01305-9
128. Qin, Y*, C Hong*, H Zhao, S Park, DK Munroe, **SJ Davis**, and ND Mueller. Snowmelt risk telecouplings for irrigated agriculture. Nature Climate Change. v. 12, p. 1007-1015. doi: 10.1038/s41558-022-01509-z
127. Sanders, BF, JE Schubert, D Kahl, KJ Mach, D Brady, A AghaKouchak, F Forman, RA Matthew, N Ulibarri, and **SJ Davis**. Large and inequitable flood risks in Los Angeles, California. Nature Sustainability. v. 6, p. 47-57. doi: 10.1038/s41893-022-00977-7

126. AghaKouchak, A, B Pan, O Mazdiyasi, M Sadegh, S Jiwa, W Zhang, CA Love, S Madadgar, S Papalexio, **SJ Davis**, K Hsu, and S Sorooshian. Status and prospects for drought forecasting: Opportunities in artificial intelligence and hybrid physical-statistical forecasting. Philosophical Transactions A. v. 380, n. 20210288, doi: 10.1098/rsta.2021.0288
125. Cui, C, D Guan, D Wang, V Chemutai, P Brenton, S Zhang, Q Zhang, and **SJ Davis**. Global mitigation efforts cannot neglect emerging emitters. National Science Review. doi: 10.1093/nsr/nwac223
124. Zhu, S, M Mac Kinnon, A Carlos-Carlos, **SJ Davis**, and S Samuelsen. Decarbonization will lead to more equitable air quality in California. Nature Communications. v. 13, p. 5738, doi: 10.1038/s41467-022-33295-9
123. Huo, D, X Huang, X Dou, P Ciais, Y Li, Z Deng, Y Wang, D Cui, F Benkhelifa, T Sun, B Zhu, G Roest, KR Gurney, P Ke, R Guo, C Lu, X Lin, A Lovell, K Appleby, PL DeCola, **SJ Davis**, and Z Liu. Carbon Monitor Cities near-real-time daily estimates of CO₂ emissions from 1500 cities worldwide. Scientific Data. v. 9, p. 533. doi: 10.1038/s41597-022-01657-z
122. Tang, L, X Xue, J Ruan, X Bo, Z Mi, S Wang, G Dong and **SJ Davis**. Plant-level real-time monitoring data reveal substantial abatement potential of air pollution and CO₂ in China's cement sector. One Earth. v. 5, p. 892-906. doi: 10.1016/j.oneear.2022.07.003
121. Liu, Z, Z Deng, P Ciais, J Tan, B Zhu, **SJ Davis**, RM Andrew, O Boucher, SB Arou, JG Canadell, X Dou, P Friedlingstein, R Guo, C Hong, RB Jackson, D Kammen, P Ke, C Le Quéré, C Monica, G Janssens-Maenhout, GP Peters, K Tanaka, Y Wang, B Zheng, H Zhong, T Sun, H Schellnhuber, P Gentine. Global patterns of daily CO₂ emissions reductions in the first year of COVID-19. Nature Geoscience. doi: 10.1038/s41561-022-00965-8
120. Hong, C*, H Zhao, Y Qin, Q Zhang, JA Burney, J Pongratz, K Hartung, Y Liu, FC Moore, RB Jackson, and **SJ Davis**. Land-use emissions embodied in international trade. Science. v. 376, n. 6593, p. 597-603. doi: 10.1126/science.abj1572
119. Deng, Z, P Ciais, ZA Tzompa-Sosa, M Saunio, C Qiu, C Tan, T Sun, P Ke, Y Cui, K Tanaka, X Lin, RL Thompson, H Tian, Y Yao, Y Huang, R Lauerwald, AK Jain, X Xu, A Bastos, S Sitch, PI Palmer, T Lauvaux, A d'Aspremont, C Giron, A Benoit, B Poulter, J ChangR Petrescu, **SJ Davis**, Z Liu, G Grassi, C Albergel, and F Chevallier. Comparing national greenhouse gas budgets reported in UNFCCC inventories against atmospheric inversions. Earth System Science Data. v. 14, no. 4, p. 1639-1675. doi: 10.5194/essd-14-1639-2022

118. **Davis, SJ**, Z Liu, Z Deng, B Zhu, P Ke, T Sun, R Guo, C Hong*, B Zheng, Y Wang, O Boucher, P Gentine, and P Ciais. Emissions rebound from the COVID-19 pandemic. Nature Climate Change. doi: 10.1038/s41558-022-01332-6
117. Fennell, P, J Driver, C Bataille, and **SJ Davis**. Going net zero for cement and steel. Nature. v. 603, p. 574-578. doi: 10.1038/d41586-022-00758-4
116. Liu, Z, Z Deng, **SJ Davis**, C Giron, and P Ciais. Monitoring global carbon emissions in 2021. Nature Reviews Earth & Environment. doi: 10.1038/s43017-022-00285-w
115. Jackson, RB, P Friedlingstein, C LeQuéré, S Abernethy, RM Andrew, JG Canadell, P Ciais, **SJ Davis**, Z Deng, Z Liu, GP Peters. Global CO₂ emissions rebound to pre-COVID-19 levels. Environmental Research Letters. v. 17, p. 031001, doi: 10.1088/1748-9326/ac55b6
114. Liu, Y, D Tong*, J Cheng, **SJ Davis**, S Yu, B Yarlagadda, LE Clarke, M Brauer, AJ Cohen, H Kan, T Xue, and Q Zhang. Role of climate goals on reducing future air pollution deaths in China: a modelling study. The Lancet Planetary Health. v. 6, n. 2, p. e92-e99, doi: 10.1016/S2542-5196(21)00326-0
113. Arent, DJ, C Barrows, **SJ Davis**, G Grim, J Schaidle, B Kroposki, M Ruth, B Van Zandt. Integration of energy systems. MRS Bulletin. V. 46, doi:10.1557/s43577-021-00244-8
- 2021
112. Ciais, P, F-M Bréon, S Dellaert, Y Wang, K Tanaka, L Gurriaran, Y Françoise, **SJ Davis**, C Hong*, J Penuelas, I Janssens, M Obersteiner, Z Deng, and Z Liu. Impact of lockdowns and winter temperatures on natural gas consumption in Europe. Earth's Future. doi: 10.1029/2021EF002250
111. Tong, D*, G Geng, Q Zhang, J Cheng, X Qin, C Hong*, and **SJ Davis**. Health co-benefits of climate change mitigation depend on strategic power plant retirements and pollution controls. Nature Climate Change. doi: 10.1038/s41558-021-01216-1
110. Weir, B, D Crisp, CW O'Dell, S Basu, A Chatterjee, T Oda, LE Ott, S Pawson, B Poulter, Z Zhang, P Ciais, Z Liu, and **SJ Davis**. Regional impacts of COVID-19 on carbon dioxide detected worldwide from space. Science Advances. v. 6, p. eabc3436, doi: 10.1126/sciadv.abf9415
109. Dou, X, Y Wang, P Ciais, F Chevallier, **SJ Davis**, M Crippa, G Janssens-Maenhout, D Guizzardi, E Solazzo, F Yan, D Huo, Z Bo, B Zhu, D Cui, P Ke, T Sun, H Wang, Q Zhang, P Gentine, Z Deng and Z Liu. Near-real-time global gridded daily CO₂ emissions. The Innovation. doi: 10.1016/j.xinn.2021.100182
108. Tong, D*, DJ Farnham, L Duan, Q Zhang, NS Lewis, K Caldeira, and **SJ Davis**. Geophysical constraints on the reliability of solar and wind power worldwide. Nature Communications. v. 12, p. 6141, doi: 10.1038/s41467-021-26355-z

107. DeAngelo, J*, I Azevedo, J Bistline, L Clarke, G Luderer, E Byers, and **SJ Davis**. Energy systems in scenarios at net-zero CO₂ emissions. Nature Communications. v. 12, p. 6096, doi: 10.1038/s41467-021-26356-y
106. Jackson, RB, S Abernethy, JG Canadell, M Cargnello, **SJ Davis**, S Féron, S Fuss, A Heyer, C Hong*, CD Jones, HD Matthews, FM O'Connor, M Pisciotta, HM Rhoda, R de Richter, EI Solomon, JL Wilcox, and K Zickfeld. Atmospheric methane removal: a research agenda. Philosophical Transactions of the Royal Society A. doi: 10.1098/rsta.2020.0454
105. Azevedo, I, C Bataille, J Bistline, L Clarke, and **SJ Davis**. Net-zero emissions energy systems: What we know and do not know. Energy and Climate Change. doi: 10.1016/j.egycc.2021.100049
104. Geng, G, Y Zheng, Q Zhang, T Xue, H Zhao, D Tong*, B Zheng, M Li, F Liu, C Hong*, K He and **SJ Davis**. Drivers of PM_{2.5} air pollution deaths in China 2002-2017. Nature Geoscience. doi: 10.1038/s41561-021-00792-3
103. Tian, S, H He, A Kendall, **SJ Davis**, OA Ogunseitan, JM Schoenung, S Samuelsen, and B Tarroja. Environmental trade-offs of flow battery energy storage in California. Applied Energy. doi: 10.1016/j.apenergy.2021.117354
102. Lamb, WF, T Wiedmann, J Pongratz, R Andrew, M Crippa, J Olivier, D Wiedenhofer, G Mattioli, A Al Khourdajie, J House, S Pachauri, M Figuerola, Y Saheb, R Slade, K Hubacek, L Sun, SK Ribeiro, S Khennas, S de la Rue de le Can, L Chapungu, **SJ Davis**, I Bashmakov, H Dai, S Dhakal, X Tan, Y Geng, B Gu, and J Minx. A review of trends and drivers of greenhouse gas emissions by sector from 1990 to 2018. Environmental Research Letters. v. 16, p. 073005, doi: 10.1088/1748-9326/abee4e
101. Bo, X, M Jia, X Xue, L Tang, Z Mi, S Wang, W Cui, X Chang, J Ruan, S Dong, B Zhou, and **SJ Davis**. Effect of strengthened standards on Chinese iron- and steelmaking emissions. Nature Sustainability. doi: 10.1038/s41893-021-00736-0
100. Benz, S, **SJ Davis**, J Burney. Drivers and projections of global surface temperature anomalies at sub-city scale. Environmental Research Letters. v. 16, p. 064093, doi: 10.1088/1748-9326/ac0661
99. Fennell, P, **SJ Davis**, and A Mohammed. Decarbonizing cement production. Joule. doi: 10.1016/j.joule.2021.04.011
98. Guo, R, J Wang, L Bing, D Tong*, P Ciais, **SJ Davis**, RM Andrew, F Xi, and Z Liu. Global CO₂ uptake of cement in 1930-2019. Earth System Science Data. v. 13, p. 1791-1805, doi: 10.5194/essd-2020-275
97. Cheng, J, D Tong*, Q Zhang, Y Liu, Y Lei, G Yan, L Yan, S Yu, RY Cui, L Clarke, G Geng, B Zheng, X Zhang, **SJ Davis**, K He. Pathways of China's PM_{2.5} air quality 2015-2060 in the context of carbon neutrality. National Science Review. p. nwab078, doi:10.1093/nsr/nwab078

96. Arellano-Gonzales, J, A AghaKouchak, J Burney, **SJ Davis**, MC Levy, Y Qin*, and FC Moore. The adaptive benefits of agricultural water markets in California. Environmental Research Letters. doi: 10.1088/1748-9326/abde5
95. Le Quéré, CL, GP Peters, P Friedlingstein, RM Andrew, JG Canadell, **SJ Davis**, RB Jackson, and MW Jones. Fossil CO₂ emissions in the post-COVID era. Nature Climate Change. v. 11, p. 197-199, doi: 10.1038/s41558-021-01001-0
94. Hong, C*, JA Burney, J Pongratz, JEMS Nabel, ND Mueller, RB Jackson, and **SJ Davis**. Global and regional drivers of land-use greenhouse gas emissions 1961-2017. Nature. v. 589, p. 554-561, doi: 10.1038/s41586-020-03138-y
- 2020
93. Wang, D, D Guan, S Zhu, M MacKinnon, G Geng, Q Zhang, H Zheng, T Lei, P Gong and **SJ Davis**. Economic footprint of California wildfires in 2018. Nature Sustainability. doi: 10.1038/s41893-020-00646-7
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- 2014
- Shearer, C, M Inman, and **SJ Davis**. Keystone XL: The Climate Impact: An Expert Elicitation. A report published by Near Zero: <http://www.nearzero.org/reports/KXL/>

- 2012 Inman, M and **SJ Davis**. How Low Will Solar Photovoltaic Prices Go?: An Expert Discussion. A report published by Near Zero: <http://www.nearzero.org/reports/pv-learning/>
- Inman, M and **SJ Davis**. Energy High in the Sky: Expert Perspectives on Airborne Wind Energy Systems. A report published by Near Zero: <http://www.nearzero.org/reports/AirborneWind/>
- 2011 **Davis, SJ**. Department of Energy Funding Priorities: An Expert Discussion. A report published by Near Zero: <http://www.nearzero.org/reports/doe-priorities>
- 2009 **Davis, SJ**, Reducing the Carbon Footprint of Fat Tire® Amber Ale by Changing Agricultural Practices: Potential and Limitations. A report by The Climate Conservancy.
- 2008 **Davis, SJ**. The Carbon Footprint of Earthbound Farm® Mixed Baby Greens. A report by The Climate Conservancy.
- Davis, SJ**. The Carbon Footprint of Fat Tire® Amber Ale. A report by The Climate Conservancy: http://www.ess.uci.edu/~sjdavis/pubs/Fat_Tire_2008.pdf
- 2007 **Davis, SJ**, Toward a Product-Level Standard: Life Cycle Analysis of Greenhouse Gas Emissions. The London Accord.

PROFESSIONAL AFFILIATIONS

- State Bar of California
- American Geophysical Union (Fellow)
- American Association for the Advancement of Science (Member)
- Rancho Gordo Bean Club (Member)

TEACHING

- ESS 70A Sustainable Energy Systems
- ESS 204 Humans in the Earth System
- ESS 158 Sustainable Systems Analysis
- ESS 100 Climate Solutions (Bending the Curve)
- UPPP H30E Cities: Focal Point for Sustainability Problems and Solutions
- ESS 192 Careers in Earth System Science
- ESS 178 Solving the Carbon-Climate-Energy Problem (*retired*)
- ESS 60C Global Environmental Issues (*retired*)

AWARDS AND GRANTS

- 2023 Clarivate Analytics Highly Cited Researcher 2023
- 2022 Clarivate Analytics Highly Cited Researcher 2022
- ClimateWorks Foundation, “Net-zero emissions food systems.” (PI: **SJ Davis**), \$250,000
- 2021 Clarivate Analytics Highly Cited Researcher 2021

- 2020 Clarivate Analytics Highly Cited Researcher 2020
ClimateWorks Foundation, "Assessing the global potential of macroalgae cultivation." (PI: **SJ Davis**), \$150,000
Climate Imperative/Energy Innovation Policy and Technology LLC, "State-level Carbon Monitor." (PI: **SJ Davis**), \$100,000
- 2019 Clarivate Analytics Highly Cited Researcher 2019
Research Support from Carnegie Institution for Science, (PI: **SJ Davis**), \$170,000
- 2018 [James B. Macelwane Medal](#) (American Geophysical Union),
Conferred AGU Fellow
- 2017 Ecological Society of America Sustainability Science Award
<http://www.esa.org/esablog/meetings/esa-2017-annual-meeting/jianguo-liu-2017-sustainability-science-award/>
- 2016 NSF/USDA Innovations at the Nexus of Food, Energy and Water Systems (INFEWS), "Monitoring and managing food, energy, and water systems under stress: The California crucible." (PI: **SJ Davis**), \$2.88M total, \$1.88M to UC Irvine:
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Alfred P. Sloan Foundation, Does the elicitation mode matter? Comparing different methods for eliciting expert judgment. (PI: Erin Baker, UMass Amherst), \$20,000
- 2015 Gordon & Betty Moore Foundation, Funding for Workshop: "Critical Barriers to Progress in Sustainability Science," (PI: **SJ Davis**), \$30,000
[PNAS Cozzarelli Prize](#)
- 2014 Research Support from Near Zero, (PI: **SJ Davis**), \$100,000
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- 2013 NSF Coupled Human and Natural Systems (CHANS) Fellowship, \$1,500
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